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| 10/632,411 | 08/01/2003 | Parvathanathan Subrahmanya | 020133 | 4378 |

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Qualcomm Incorporated
Patents Department
5775 Morehouse Drive
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EXAMINER

DOAN, KIET M

| ART UNIT | PAPER NUMBER |
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2683

DATE MAILED: 06/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/632,411

Applicant(s)

SUBRAHMANYA,
PARVATHANATHAN

Examiner

Kiet Doan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-20, 22-30 and 32-49 is/are rejected.
- 7) ☒ Claim(s) 10, 21 and 31 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>03/08/2004</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 33 objected to because of the following informalities: On page 23 claim "33" should change to claim "30". Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1-12, 15-21, 24-31, 35-46 and 49** are rejected under 35 U.S.C. 103(a) as being unpatentable over LeBlanc et al. (Patent No. 6,236,365) in view of Tkanashi et al. (Pub. No. 2001/0004384).

Consider **claim 1**, LeBlanc teaches a method of adapting a pilot filter that processes received signals in a wireless communication network, the method comprising: determining a velocity of a wireless communication device in relation to a wireless network infrastructure (Title, Abstract, C29, L42-65, teach determining velocity which read on approximate velocity). LeBlanc teaches the limitation of claim as discuss **but fail to teach** and determining one or more coefficients of the pilot filter based on the determined velocity of the wireless communication device.

In an analogous art, Takanashi teaches "Wayform equalizer, mobile station wireless apparatus using the same base station wireless apparatus using the same, and mobile communication system using the same". Further, Takanashi teaches and

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determining one or more coefficients of the pilot filter based on the determined velocity of the wireless communication device (Page 4, Paragraph 35, Page 8, Paragraphs 77-79).

Therefore, it would have been obvious at the time that the invention was made that person having ordinary skill in the art to modify LeBlanc and Takanashi system, such that determining a velocity of a wireless communication device in relation to a wireless network infrastructure and one or more coefficients of the pilot filter to provide means for controlling and maintain timing/frequency transmitted with the best link communicaton.

Consider **claims 2 and 3**, Takanashi teaches a method as defined in claim 1, wherein determining the velocity of the wireless communication device and determining the one or more coefficients are performed in the wireless communication device/network infrastructure (Page 4, Paragraph 35).

Consider claims 4 and 5, LeBlanc teaches a method as defined in claim 1, wherein determining the velocity of the wireless communication device is performed in the wireless communication device/network structure (C29, L42-65, teach determining velocity which read on approximate velocity),

Takanashi teaches and determining the one or more coefficients are performed in the wireless network infrastructure/communication device (Page 4, Paragraph 35, Page 8, Paragraph 79).

Consider **claim 6**, Takanashi teaches a method as defined in claim 1, further comprising applying the one or more coefficients to a pilot filter (Page 8, Paragraph 79).

Consider **claims 7 and 8**, LeBlanc teaches a method as defined in claim 6, wherein applying the coefficients is performed in the wireless communication device/network infrastructure (Title, C16, L11-64).

Consider **claims 9, 20, and 30**, LeBlanc teaches a method as defined in claim 1, wherein determining the velocity further comprises receiving velocity information from a global positioning system receiver (C2, L1-40).

Consider **claims 10, 21 and 31**, LeBlanc teaches a method as defined in Claim 1, wherein determining the velocity further comprises receiving at least two location measurements of the wireless communication device, wherein the measurements are made at different, known, times, and determining the velocity of the wireless communication device is based on the at least two location measurements and their respective measurement times (C7, L64-67, C17, L33-43, C52, L49-67, C53, L1-20).

Consider **claim 11**, LeBlanc teaches a method as defined in claim 1, wherein the wireless network infrastructure further comprises a base station (C10, L48-59).

Consider **claims 12, 17, 25, 37, 41 and 45**, LeBlanc teaches a method as defined in claim 1, wherein determining the one or more coefficients further comprises

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determining the one or more coefficients based on a noise power estimate (C5, L9-26, C12, L7-38).

Consider **claims 15, 18 and 28**, Takanashi teaches a method as defined in claim 1, wherein determining the one or more coefficients further includes selecting the one or more coefficients from a set of predetermined coefficients (Page 4, Paragraph 35-37).

Consider **claim 16**, Takanashi teaches a communication device comprising: a pilot filter that receives pilot signal samples over a communication channel; and a controller that determines filter coefficients of the pilot filter based on the wireless communication device velocity and adapts the pilot filter to the communication channel (C8, Paragraphs 77-78 teach the controller which read on impulse response filter Fig.1, No.12, Page 4, Paragraph 35).

Consider **claims 19 and 29**, Takanashi teaches a communication device as defined in claim 18, wherein the predetermined coefficients are retrieved from a look up table (Page 2, Paragraph 15).

Consider **claims 24 and 49**, Takanashi teaches a communication device comprising: a plurality of pilot filters each of which is configured to receive a pilot signal and to output a filtered pilot signal; and a controller configured to select one of the

plurality of pilot filter outputs based on the wireless communication device velocity (C2, L15, C4, L35, C8, L77).

Consider **claim 26**, Takanashi teaches a communication device as defined in claim 24, wherein the plurality of filters are configured to be adapted by changing filter coefficients (Page 8, Paragraph 77).

Consider **claim 27**, Takanashi teaches a communication device as defined in claim 26, wherein the controller determines filter coefficients for the plurality of pilot filters based on the communication device velocity (Page 4, 35, Page 8, Paragraph 35).

Consider **claims 35 and 39**, LeBlanc teaches a wireless communication system comprising: at least one mobile wireless communication device with a pilot filter that is configured to accept coefficients that adapt the operation of the filter to a communication channel response; and an infrastructure device configured to communicate with the at least one mobile wireless communication device (Abstract, C17, L1-60),

Takanashi teaches wherein the infrastructure device receives signals from the mobile wireless communication device and based on those signals determines pilot filter coefficients and transmits the coefficients to the mobile wireless communication device for use in configuring the pilot filter (Page 8, Paragraphs 77-79).

Therefore, it would have been obvious at the time that the invention was made

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that person having ordinary skill in the art to modify LeBlanc and Takanashi system, such that at least one mobile wireless communication device with a pilot filter that is configured to accept coefficients that adapt the operation of the filter to a communication channel response; and an infrastructure device configured to communicate with the at least one mobile wireless communication device for use in configuring the pilot filter, to provide means for controlling communication by using filtering.

Consider **claims 36, 40 and 44**, LeBlanc teaches wireless communication system as defined in claim 35, wherein the infrastructure includes a base station (C17, L1-19).

Consider **claims 38, 42 and 46**, LeBlanc teaches a wireless communication system as defined in claim 35, wherein the signals received from the mobile wireless communication device include an estimate of the mobile wireless communication device velocity (C29, L41-56).

Consider **claim 43**, LeBlanc teaches a wireless communication system comprising: at least one mobile wireless communication device; and an infrastructure device with a pilot filter configured to receive a signal transmitted from the mobile wireless communication device over a communication channel and to accept coefficients that adapt the response of the filter (C9, L51-67, C10, L1-21), wherein the

infrastructure device receives signals from the mobile wireless communication device and, based on those signals, a set of coefficients that are provided to the pilot filter are determined (C11, L1-31).

3. Claim 13-14, 22-23, 32-34 and 47-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over LeBlanc et al. (Patent No. 6,236,365) in view of Takanashi et al. (Pub. No. 2001/0004384) and further view of Agazzi et al. (Pub. No. 2001/0000219).

Consider **claims 13-14, 22-23, 32-34 and 47-48**, LeBlanc and Takanashi teach the limitation of claims as discuss above **but fail to teach** a method as defined in claim 1, wherein the pilot filter is a finite/ infinite impulse response filter.

In an analogous art, Agazzi teaches “Demodulator for a multi-pair gigabit transceiver”. Further, Agazzi teaches a method as defined in claim 1, wherein the pilot filter is a finite/ infinite impulse response filter (Page 1, Paragraph 6, Page 6, Paragraphs 66-70).

Therefore, it would have been obvious at the time that the invention was made that person having ordinary skill in the art to modify LeBlanc, Takanashi and Agazzi system, such that the pilot filter is a finite/ infinite impulse response filter, to provide means for controlling the limit velocity.

Consider **claims 19 and 29**, Takanashi teaches a communication device as defined in claim 18, wherein the predetermined coefficients are retrieved from a look up table (Page 2, Paragraph 15).

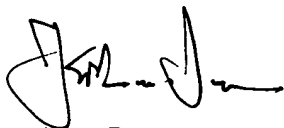
Consider **claim 24**, Takanashi teaches a communication device comprising: a plurality of pilot filters each of which is configured to receive a pilot signal and to output a filtered pilot signal; and a controller configured to select one of the plurality of pilot filter outputs based on the wireless communication device velocity (C2, L15, C4, L35, C8, L77).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kiet Doan whose telephone number is 571-272-7863. The examiner can normally be reached on 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Trost can be reached on 571-272-7872. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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